

Serial No. 09/867,664

Docket No.: 1359.1048

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strike through~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (~~withdrawn~~), (new), (previously presented), or (not entered).

Please CANCEL claim 2/1 and AMEND claims 1 and 19 and ADD new claim 20 in accordance with the following:

1. (CURRENTLY AMENDED) An echo canceling system for a full-duplex communication system comprising:
 - a sound characteristics detecting portion ~~for~~ detecting sound characteristics information of an echo path seen from a speaker side; ~~and~~
 - an echo canceling processing portion ~~for~~ canceling an echo included in a signal returned from a system on a conversation partner side based on the sound characteristics information detected by the sound characteristics detecting portion;
 - ~~wherein these portions are the sound characteristics detecting portion and the echo canceling portion being~~ installed in a communication system not on the conversation partner side but on the speaker side; and
 - an adjusting portion receiving a tuning signal of an echo canceling processing by a speaker, wherein the echo canceling processing portion cancels the echo using the tuning signal in addition to the sound characteristics information detected by the sound characteristics detecting portion.
2. (CANCELLED)
3. (ORIGINAL) The echo canceling system according to claim 2, wherein the sound characteristics detecting portion comprises a signal generating portion for generating a sound characteristics detecting signal, which serves as a reference signal, and
 - before starting a conversation, the sound characteristics detecting portion detects the sound characteristics information of the echo path seen from the speaker side using the sound characteristics detecting signal and a response signal returned from the conversation partner

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side.

4. (ORIGINAL) The echo canceling system according to claim 3, wherein, in detecting the sound characteristics information of the echo path by the sound characteristics detecting portion, a threshold and a correlation search range with respect to a correlation value between the reference signal in the system on the speaker side and the response signal returned from the conversation partner side can be adjusted.

5. (ORIGINAL) The echo canceling system according to claim 2, wherein a voice signal inputted during a conversation is regarded as a reference signal, and the sound characteristics detecting portion detects the sound characteristics information of the echo path seen from the speaker side using the voice signal and a response signal returned from the conversation partner side.

6. (ORIGINAL) The echo canceling system according to claim 5, wherein, in detecting the sound characteristics information of the echo path by the sound characteristics detecting portion, a threshold and a correlation search range with respect to a correlation value between the reference signal in the system on the speaker side and the response signal returned from the conversation partner side are adjusted.

7. (ORIGINAL) The echo canceling system according to claim 2, wherein an echo canceling signal used in the echo canceling processing of the echo canceling processing portion is divided into a delayed part and a signal part following the delayed part, and the echo canceling processing portion includes a delay filter for providing a delay corresponding to the delayed part and a signal filter for generating a signal corresponding to the signal part.

8. (ORIGINAL) The echo canceling system according to claim 2, wherein the system on the speaker side comprises a loudspeaker and a plurality of microphones and performs a synchronous addition of input voice signals of the plurality of the microphones with respect to a direction of the speaker so as to enhance a voice signal.

9. (ORIGINAL) The echo canceling system according to claim 2, wherein the system on the speaker side comprises a loudspeaker and a microphone array or a plurality of

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microphones and performs a synchronous subtraction of input voice signals of the microphone array or the plurality of the microphones with respect to a direction of the loudspeaker so as to cancel out an echo signal outputted from the loudspeaker.

10. (ORIGINAL) The echo canceling system according to claim 2, wherein the speaker can choose execution or suspension of the echo canceling processing by the echo canceling processing portion and of the sound characteristics detecting processing of the echo path by the sound characteristics detecting portion.

11. (CURRENTLY AMENDED) The echo canceling system according to claim 42, wherein the sound characteristics detecting portion comprises a signal generating portion for generating a sound characteristics detecting signal, which serves as a reference signal, and before starting a conversation, the sound characteristics detecting portion detects the sound characteristics information of the echo path seen from the speaker side using the sound characteristics detecting signal and a response signal returned from the conversation partner side.

12. (ORIGINAL) The echo canceling system according to claim 11, wherein, in detecting the sound characteristics information of the echo path by the sound characteristics detecting portion, a threshold and a correlation search range with respect to a correlation value between the reference signal in the system on the speaker side and the response signal returned from the conversation partner side can be adjusted.

13. (CURRENTLY AMENDED) The echo canceling system according to claim 42, wherein a voice signal inputted during a conversation is regarded as a reference signal, and the sound characteristics detecting portion detects the sound characteristics information of the echo path seen from the speaker side using the voice signal and a response signal returned from the conversation partner side.

14. (ORIGINAL) The echo canceling system according to claim 13, wherein, in detecting the sound characteristics information of the echo path by the sound characteristics detecting portion, a threshold and a correlation search range with respect to a correlation value between the reference signal in the system on the speaker side and the response signal returned from the conversation partner side are adjusted.

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15. (CURRENTLY AMENDED) The echo canceling system according to claim 42, wherein an echo canceling signal used in the echo canceling processing of the echo canceling processing portion is divided into a delayed part and a signal part following the delayed part, and the echo canceling processing portion includes a delay filter for providing a delay corresponding to the delayed part and a signal filter for generating a signal corresponding to the signal part.

16. (CURRENTLY AMENDED) The echo canceling system according to claim 42, wherein the system on the speaker side comprises a loudspeaker and a plurality of microphones and performs a synchronous addition of input voice signals of the plurality of the microphones with respect to a direction of the speaker so as to enhance a voice signal.

17. (CURRENTLY AMENDED) The echo canceling system according to claim 42, wherein the system on the speaker side comprises a loudspeaker and a microphone array or a plurality of microphones and performs a synchronous subtraction of input voice signals of the microphone array or the plurality of the microphones with respect to a direction of the loudspeaker so as to cancel out an echo signal outputted from the loudspeaker.

18. (CURRENTLY AMENDED) The echo canceling system according to claim 42, wherein the speaker can choose execution or suspension of the echo canceling processing by the echo canceling processing portion and of the sound characteristics detecting processing of the echo path by the sound characteristics detecting portion.

19. (CURRENTLY AMENDED) An echo canceling processing program realizing an performing echo canceling processing for a full-duplex communication system, the program comprising program codes of:

a sound characteristics detecting processing operation ~~for detecting~~ sound characteristics information of an echo path seen from a speaker side; ~~and~~

an echo canceling processing operation ~~for canceling~~ an echo included in a signal returned from a system on a conversation partner side based on the sound characteristics information detected in the sound characteristics detecting processing operation;

~~wherein these operations will be performed~~ the sound characteristics detecting portion and the echo canceling portion being installed in a communication system not on the

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conversation partner side but on the speaker side; and

an adjusting operation receiving a tuning signal of an echo canceling processing by a speaker, wherein the echo canceling processing portion cancels the echo using the tuning signal in addition to the sound characteristics information detected by the sound characteristics detecting portion.

20. (NEW) An echo canceling processing program readable by a computer for controlling the computer to perform echo canceling processing for a full-duplex communication system, by:

detecting sound characteristics information of an echo path seen from a speaker side;

canceling an echo included in a signal returned from a system on a conversation partner side based on the sound characteristics information detected in the sound characteristics detecting processing operation;

the sound characteristics detecting and the echo canceling being performed in a communication system not on the conversation partner side but on the speaker side; and

receiving a tuning signal of an echo canceling processing by a speaker, and controlling the echo canceling processing to cancel the echo using the tuning signal in addition to the sound characteristics information detected by the sound characteristics detecting.

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